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Amendments to the Claims

This listing of claims replaces all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of forming at least one doped layer of a thyristor comprising:
providing a semiconductor crystal of a single crystalline carbide material, the semiconductor crystal having a crystal structure and forming a gate turn-off thyristor device having a plurality of layers including a layer that forms an upper base of the thyristor device being used as at least one doped layer of a thyristor; and
introducing impurities in the crystal structure to form the upper base layer after the crystal structure has been formed.
2. (Original) The method according to claim 1, wherein the act of introducing impurities includes introducing impurities using ion implantation.
3. (Cancelled)
4. (Original) The method according to claim 2, wherein the act of introducing impurities using ion implantation includes implanting phosphorus donors using high energy implantation.
5. (Original) The method according to claim 4, wherein the act of implanting phosphorus donors is performed at approximately 500 degrees C, and the crystal is annealed at approximately 1200 degrees C in argon.
6. (Currently Amended) The method according to claim 1, wherein the semiconductor crystal is of a first conductivity type and the method includes defining [[a]] the plurality of layers of the thyristor, the act of defining [[a]] the plurality of layers comprises:
defining a first layer of semiconductor material of a first conductivity type;
defining a second layer of semiconductor material of a second conductivity type in contact with the first layer;

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defining a third layer of semiconductor material of the second conductivity type in contact with the second layer;

defining a fourth layer of semiconductor material of a first conductivity type in contact with the fourth layer; and

defining a fifth layer of semiconductor material of a second conductivity type in contact with the fourth layer.

7. (Original) The method according to claim 6, further comprising doping at least one of the plurality of layers by ion implantation.
8. (Original) The method according to claim 6, wherein the first layer is made of N+ material.
9. (Original) The method according to claim 6, wherein the second layer is made of P material.
10. (Original) The method according to claim 6, wherein the third layer is made of P- material.
11. (Currently Amended) The method according to claim 6, wherein the fourth layer is made of N material and forms the upper base layer of the thyristor device.
12. (Original) The method according to claim 6, wherein the fifth layer is made of P+ material.
13. (Original) The method according to claim 11, wherein the fourth layer is formed using ion implantation.
14. (Cancelled)
15. (Cancelled)

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16. (Cancelled)

17. (New) The method according to claim 1, further comprising an act of forming the plurality of layers of the thyristor device except the upper base layer by epitaxial growth.

18. (New) The method according to claim 1, wherein the upper base layer is formed in a p-type layer by acts of performing ion implementation of an upper portion of the p-type layer and annealing the upper portion of the p-type layer.

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